

Appl. No : 09/262,000  
Amdt. dated : 09/08/03  
Reply to Office Action of 05/08/03

**REMARKS/ARGUMENTS**

Examiner Jeff B. Vockrodt is thanked for thoroughly reviewing the subject application. All claims are believed to be in condition for allowance.

Claim Objections

Reconsideration of the objection of claims 8, 14-16, 18-23, 25-28, 30-32 and 38-40 is respectfully requested based on the following.

The Examiner is thanked for pointing out the various antecedent basis problems in the claims. The claims have been carefully reviewed and amended to correct those problems the Examiner pointed out, in addition to others. All claims are now believed to be in allowable condition.

In light of the foregoing response, applicant respectfully requests that the Examiner's claim rejection of claims 8, 14-16, 18-23, 25-28, 30-32 and 38-40 be withdrawn.

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Claim Rejections under 35 U.S.C. § 112

Reconsideration of the rejection of claims 8, 14-16, 18-23, 25-28, 30-32 and 38-40 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is respectfully requested based on the following.

The Examiner is thanked for pointing out that, for claims 8, 14-16, 18-23, 25-28, 30-32 and 38-40, there is no support in the original disclosure for performing their steps in the order that they are written in the claims. Examiner's concern has been addressed by rewiring the claims 8, 38, 39 and 40 so that the matter previously incorporated from the respective dependent claims is appended in a separate clause to the end of each respective claim, as kindly suggested by Examiner.

The claims have been carefully reviewed and amended to correct those problems the Examiner pointed out, in addition to others. Claim dependency has been corrected for dependent claims where such a correction was in order. In addition, the term "for" has been replaced with the term "further comprising" in a

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number of claims, such as claims 14-16 and 18-23, as kindly suggested by Examiner.

All claims are now believed to be in allowable condition.

In addition and to assure that the matter specified in the claims is described in the specification of the application, the text of the independent claims 8, 38-40 with the additional specifications that have been provided in the dependent claims to these claims has been entered on page 15 of the specification. No new matter has been introduced by this entry.

In light of the foregoing response, applicant respectfully requests that the Examiner's rejection of claims 8, 14-16, 18-23, 25-28, 30-32 and 38-40 under 35 U.S.C. 112, first paragraph, be withdrawn.

Claim rejections - 35 U.S.C. § 103(a)

Reconsideration of the rejection of claim 39 under 35 U.S.C 103(a) as being unpatentable over Wong (US 6,027,999) in view of

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Moore (US Patent 6,124,912) and Shigeta (US Patent 6,266,121) is

respectfully requested based on the following.

Wong essentially teaches the steps that are cited by examiner as a basis for the rejection of claim 39 and as partially specified in amended claim 39 of the claimed invention. Wong however does not provide for the following quoted clauses that are part of amended claim 39, that is:

- depositing optical interference layers of silicon oxide or silicon nitride over the third metallic layer and the silicon dioxide layer, and
- forming alignment post by the process of insulation material by lift-off upon the optical interference layer.

Moore (US Patent 6,124,912) provides for the creation of a reflectance enhancing film over a reflective metal surface of an integrated circuit.

This application differs considerably from the application of the optical interference layers that are provided by the claimed invention since the layer that is provided by Moore is designed to provide optimum reflection performance characteristics while the optical interference layers that are

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provided by the claimed invention are provided to provide  
optimum light transmission performance characteristics.

The passivation layer that is provided by Wong is a conventional passivation layer that serves to protect the created structure against environmental impact and the therefrom following damage to the created device.

There is no reason to associate, from a technical design point of view, the passivation layer that is provided by Wong with a layer that is designed to provide optimum light reflection (Moore) or optimum light transmission (the claimed invention).

A passivation layer is considered based on characteristics of hardness, the lack of fissures, the resistance to high-temperature processing conditions, etc. Optical layers, be they light reflecting layers or light passing layers, obviously fall into a completely different category of layers and therefore in a completely different category of materials, design objectives, methods of evaluation, even methods of application of the light sensitive layers.

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Shigeta provides a liquid crystal display element and a method for the creation thereof, as part of this element and the creation thereof Shigeta forms a spacer having a uniform height. Other than a creation of a spacer, the invention provided by Shigeta and the claimed invention have no base for commonality.

For instance, Shigeta does not, as specified in amended claim 39 of the claimed invention, provide for:

- forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active device structure in a silicon body comprising
- providing a silicon wafer having a pattern of active device structures therein and thereon
- forming a first metallic layer over the surface of the wafer
- forming a second metallic layer over the first metallic layer, which is used both for connections and for bonding pads
- forming a silicon dioxide insulation over the second metallic layer
- forming a third metallic layer over the layer of silicon dioxide

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- forming a photoresist mask over the third metallic layer having a covering over planned pixel locations of the liquid-crystal-on-silicon display device
- removing the third metallic layer not covered by the photoresist mask
- removing the photoresist mask to provide that each the pixel retains the third metallic layer, which shall act as a mirror reflector for light incident upon the liquid-crystal-on-silicon display device
- depositing optical interference layers of silicon oxide or silicon nitride [or silicon oxide or silicon nitride] over the third metallic layer and the silicon dioxide layer, and
- forming the alignment post by the process of insulation material by lift-off upon the optical interference layer.

From the above quote of claim 39 of the claimed invention it is clear that the concept "spacer" as used by Shigeta et al. loses all meaning when this concept is applied to the claimed invention.

Two different cars may well have a (common in concept but not necessarily in detail of execution, such as is the case

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between the spacers of the claimed invention and the spacer

provided by Shigeta) starter motor but would that lead to a reasonable suggestion that the two different cars, because of the commonality of having a starter motor, are identical cars or that it is to be expected that all the design details and design aspects of one car, because of the commonality of the starter motor, can be derived from the other car?

While applicant acknowledges the teachings of Wong, Moore and Shigeta as cited by the Examiner, and although applicant does not necessarily agree that the Examiner's arguments show sufficient and proper basis for suggestion or motivation to modify or combine of Wong, Moore and Shigeta, applicant nonetheless also asserts that there is absent within the portions of Wong, Moore and Shigeta or any combination thereof, as cited by the Examiner, an express or inherent teaching of each and every limitation within applicant's invention as taught and claimed within amended claim 39.

In this regard, applicant claims that there is absent from the portions of Wong, Moore and Shigeta or any combination thereof, as cited by Examiner, a teaching of forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active

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device structure in a silicon body, of depositing optical interference layers of silicon oxide or silicon nitride over the third metallic layer and the silicon dioxide layer and of forming the alignment post by the process of insulation material by lift-off upon the optical interference layer.

None of the applied or known references address the invention as shown in the amended claim 39. The invention is believed to be patentable over the prior art cited, as it is respectfully suggested that the combination of these various references cannot be made without reference to Applicant's own invention.

None of the applied references address the problem of forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active device structure in a silicon body.

Applicant has claimed the process in detail. The processes of claim 39 are both believed to be novel and patentable over these various references, because there is not sufficient basis for concluding that the combination of claimed elements would have been obvious to one skilled in the art. That is to say,

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there must be something in the prior art or line of reasoning to suggest that the combination of these various references is desirable. We believe that there is no such basis for the combination. We therefore request Examiner Jeff B. Vockrodt to reconsider the rejection in view of these arguments and the amendments to the Claims.

In light of the foregoing response, applicant respectfully requests that the Examiner's rejection of claim 39 under 35 U.S.C 103(a) as being unpatentable over Wong (US 6,027,999) in view of Moore (US Patent 6,124,912) and Shigeta (US Patent 6,266,121), be withdrawn.

Claim rejections - 35 U.S.C. § 103(a)

Reconsideration of the rejection of claim 40 under 35 U.S.C 103(a) as being unpatentable over Wong (US 6,027,999) in view of Moore (US Patent 6,124,912) and Katagiri (US 4,763,995) and Hirakata (US 6,449,024) is respectfully requested based on the following.

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The relative merits of Wong and Moore with respect to the claimed invention have been highlighted above and are enclosed at this time by reference as being equally applicable to claim 40.

Wong teaches the steps that are cited by examiner as a basis for the rejection of claim 40, these steps are partially specified in amended claim 40 of the claimed invention. Wong however does not provide for the following quoted clauses that are part of claim amended claim 40, that is:

- depositing optical interference layers of silicon oxide or silicon nitride over the third metallic layer and the silicon dioxide layer, and
- forming said alignment post by a process of polyimide by photosensitive etching upon an Optical Interference Layer (OIL).

Moore (US Patent 6,124,912) provides for the creation of a reflectance enhancing film over a reflective metal surface of an integrated circuit.

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The layer that is provided by Moore, as a replacement for a conventional passivation layer, is designed to provide optimum reflection performance characteristics while the optical interference layers that are provided by the claimed invention are provided to provide optimum light transmission performance characteristics.

The passivation layer that is provided by Wong is a conventional passivation layer that serves to protect the created structure against environmental impact and the therefrom following damage to the created device.

There is no reason to even connect, from a technical design point of view, the passivation layer that is provided by Wong with a layer that is designed to provide optimum light reflection (Moore) or optimum light transmission (the claimed invention).

A passivation layer is considered based on characteristics of hardness, the lack of fissures, the resistance to high-temperature processing conditions, etc. Optical layers, be they light reflecting layers or light passing layers, obviously fall

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into a completely different category of layers and therefore in a completely different category of materials, design objectives, methods of evaluation, even methods of application of the light sensitive layers.

Katagari teaches, col. 7, lines 40-60 as cited by Examiner, the creation of a pattern of photosensitive polyimide into spacers, as further applied by Hirakata et al.

It is not suggested by Applicant that the patterning of polyimide as such constitutes novelty, the claimed invention does not claim this.

The claimed invention however provides for forming alignment post by a process of polyimide by photosensitive etching upon an Optical Interference Layer as part of a considerably more extensive processing sequence, that is as part of, as specified in claim 40, forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active device structure in a silicon body comprising steps of providing a silicon wafer, forming a first and a second first metallic layer, forming over the second metallic layer, forming a third metallic layer, patterning the third metallic layer to provided pixel locations

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of said liquid-crystal-on-silicon display device, depositing

optical interference layers and of forming the alignment post by

a process of polyimide by photosensitive etching upon the

Optical Interference Layer.

The above cited steps that are provided by the claimed invention have been cited to highlight that by isolating one step from the provided sequence and by citing a prior art invention that supplies this step, the complete sequence of the steps provided by the claimed invention is not suggested nor provided nor even alluded to.

Polyimide etching is part of the sequence, without the polyimide etching the sequence would not be complete. However, it is the complete process of the claimed invention which is not provided by the cited prior art, making this process patentable over the cited prior art.

While applicant acknowledges the teachings of Wong, Moore, Katagiri and Hirakata et al. as cited by the Examiner, and although applicant does not necessarily agree that the Examiner's arguments show sufficient and proper basis for suggestion or motivation to modify or combine of Wong, Moore, Katagiri and Hirakata et al., applicant nonetheless also asserts

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that there is absent within the portions of Wong, Moore,

Katagiri and Hirakata et al. or any combination thereof, as cited by the Examiner, an express or inherent teaching of each and every limitation within applicant's invention as taught and claimed within amended claim 40.

In this regard, applicant claims that there is absent from the portions of Wong, Moore, Katagiri and Hirakata et al. or any combination thereof, as cited by Examiner, the teaching of forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active device structure in a silicon body, of depositing optical interference layers of silicon oxide or silicon nitride over the third metallic layer and the silicon dioxide layer, and of forming the alignment posts by a process of polyimide by photosensitive etching upon an Optical Interference Layer (OIL).

None of the applied or known references address the invention as shown in the amended claim 40. The invention is believed to be patentable over the prior art cited, as it is respectfully suggested that the combination of these various references cannot be made without reference to Applicant's own invention.

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None of the applied references address the problem of forming a device structure that combines insulating materials for alignments posts and optical interference layers associated with an active device structure in a silicon body.

Applicant has claimed the process in detail. The processes of claim 40 are both believed to be novel and patentable over these various references, because there is not sufficient basis for concluding that the combination of claimed elements would have been obvious to one skilled in the art. That is to say, there must be something in the prior art or line of reasoning to suggest that the combination of these various references is desirable. We believe that there is no such basis for the combination. We therefore request Examiner Jeff B. Vockrodt to reconsider the rejection in view of these arguments and the amendments to the Claims.

In light of the foregoing response, applicant respectfully requests that the Examiner's rejection of claim 40 under 35 U.S.C 103(a) as being unpatentable over Wong (US 6,027,999) in view of Moore (US Patent 6,124,912) and Katagiri (US 4,763,995) and Hirakata (US 6,449,024), be withdrawn.

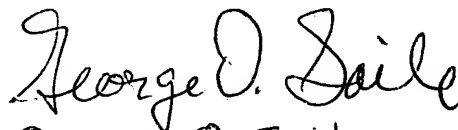
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#### Other Considerations

No new independent or dependent claims have been written as a result of this office action, no new charges are therefore incurred due to this office action.

It is requested that, should Examiner not find the claims to be allowable, to call the undersigned Attorney at the Examiner's convenience at 845-452-5863 in order to overcome any problems preventing allowance of the claims.

Respectfully submitted,



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